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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,174	07/28/2003	Hans Wilfried Peter Koops	8183	5591

7590

07/14/2006

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EXAMINER

OLSEN, ALLAN W

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/628,174	Applicant(s) KOOPS ET AL.	
	Examiner Allan Olsen	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 19-42 and 44 is/are pending in the application.
- 4a) Of the above claim(s) 42 and 44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 19-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>March 14, 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 42 and 44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 4, 2005.

Claim Objections

Claims 32 and 36 are objected to because of the following informalities:

the end of claim 32 which reads, "other the material covering surface layers" should perhaps read --"other material covering surface layers--;

the end of claim 36, which reads, "...to said further reaction product", should probably read, --to form said reaction product--;

also in claim 36, the first word of line five, "and", should be deleted.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25 and 32-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 25 recites, "initially the surface of the material to be etched is cleaned ...with the electron heating." Claim 25 is dependent upon claim 1. "The electron heating" that is recited in claim 25 is associated with step b) of claim 1. Step b) pertains to vaporizing the reaction product from step a). Therefore, the cleaning of claim 25 cannot be carried out initially because "the electron heating" of claim 25 requires step a) to occur first.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 35 recites,

a third beam of electrons, with high current density, preferably in the range of 0 to 10 C/cm² and being well focussed.

The phrase "high current density" is followed by the recitation of a preferred range. As, "high current density" includes values outside of the preferred range, the phrase "high

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current density" is a broadly recited range and "in the range of 0 to 10 C/cm²" is a narrower statement of the range/limitation.

Claim 36, line 5 recites, "the silicon oxides and coating layer". This raises issues of indefiniteness because a "coating layer" lacks explicit antecedent basis. If one assumes that the "coating layer" is the same as the previously recited "covering layer" the claim still raises issues of indefiniteness because the covering layer/coating layer was previously identified as constituting the silicon oxides. If "the silicon oxides" and the "coating layer" are one in the same, it is puzzling to recite "the silicon oxides and coating layer".

Claim 38 recites the limitation "fourth beam of electrons". There is insufficient antecedent basis for this limitation in the claim.

The phrase "high current density" in claim 35 is a relative phrase that renders the claim indefinite. This phrase is not defined by the claim's recitation of "preferably in the range of 0 to 10 C/cm²" because the word "preferably" indicates that other values are possible. However, these other values are not defined. As neither the specification nor claim provides a standard for ascertaining the extent of "high", one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 32-34, 37 and 39 are indefinite by virtue of dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 and 19-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,677,586 issued to Nasser-Ghodsi et al. (hereinafter, Nasser-Ghodsi) in view of US Patent 5,665,277 issued to Johnson et al. (hereinafter, Johnson).

Nasser-Ghodsi teaches an electron beam induced chemical etching process. Nasser-Ghodsi teaches cleaning the surface to be etched using an electron beam induced chemical etching process. Nasser-Ghodsi teaches using an electron beam in conjunction with a molecular beam to cause a chemical reaction between the species in the molecule beam and the surface residue, for example a carbon containing material. Nasser-Ghodsi teaches applying an energy beam to locally heat the surface in order to bring about the thermal desorption of nonvolatile reaction products. Nasser-Ghodsi teaches using a laser as the energy beam source. See: the abstract; column 2, lines

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45-54; column 3, line 65 – column 4, line 17; column 4, line 60 – column 5, line 4;
column 5, lines 13-20, 32-38, 52-54; column 6, lines 9-12, 16-18, 27-42, 50-54, 60-62.

Nasser-Ghodsi does not teach using an electron beam as the energy beam that locally heats the surface and brings about the thermal desorption of nonvolatile reaction products.

Johnson teaches vaporizing material by localized heating of a substrate with the application of various types of thermal energy beams, which include laser and electron beams. See column 1, line 64-column 3, line 4.

It would have been obvious to one skilled in the art to replace the laser beam of Nasser-Ghodsi with an electron beam because Johnson teaches that these two methods are functionally equivalent with respect to locally heating of a substrate to vaporize material.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground of rejection.

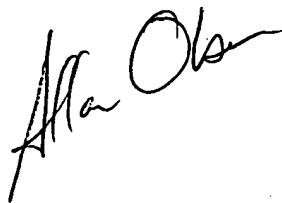
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen", is written over a light gray grid background.

Allan Olsen
Primary Examiner
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